REMARKS

I. Status of Claims

Prior to entry of this paper, Claims 1-44 were pending. Claims 1-44 were rejected. In this paper, Claims 1, 21, 29, and 41 are amended. Claims 1-44 remain pending. No new matter is added by way of this amendment. For at least the following reasons, it is respectfully submitted that each of the pending claims is in condition for allowance.

II. Claim Rejections - 35 U.S.C § 102

Claims 1-2, 6-8, 10-12, 18-22, 26-28, 30-32, 38-41 and 44 were rejected under 35 U.S.C. 102(b) as being anticipated over Bhattacharya "Design Notes on Asynchronous I/O (aio) for Linux" (hereafter Bhattacharya.

Claim 1 has been amended to include the limitation of changing the priorities of the requests in the request queue based on the number of events available at the event port, wherein the changing is further based on a specified number of events to be retrieved as part of at least one request received in response to the number of events available at the event port. Support for this amendment can be found, for example, on page 5, lines 6-18 of the specification as originally filed.

This amendment clarifies the distinction and thus patentability between the claimed invention and the cited prior art. Specifically, these amendments clarify the priority of the event retrieval requests and the manner in which this priority may be modified by the claimed invention

With regards to the amended limitations of Claim 1 and the previously cited teachings of Bhattacharya, it is respectfully submitted that the Bhattacharya does not teach or suggest all of the limitations of the claimed invention. Specifically, Bhattacharya does not teach or suggest (A) ordering the request queue based on priorities of the requests in the request queue and (B) changing the priorities of the requests in the request queue based on a number of events available at a completion port, wherein the changing is further based on a specified number of events to be retrieved as part of a request received in response to the number of available events.

Bhattacharya discloses an Asynchronous I/O scheme for Linux that includes the ability to group operations at the time of their I/O submission. With regards to (A), Bhattacharya has been relied upon to teach this limitation, citing the wait queue on page 15, section 4.1.1, page 17, section 4.2.1 and the priorities discussed on pages 6-7, section 2.4, and on page 10, section 5 (page 3, para. 2 of the most recent Office Action). First, it is noted that section 4.2.1 discusses a completion queue structure, so while this may interact with a wait queue structure, it is not the same object and cannot necessarily be relied upon as if it were the same as a request queue. Reviewing this section on page 17, it is respectfully submitted that these teachings indeed do not pertain or suggest the limitations of the request queue, as are claimed in Claim 1. Regarding section 4.1.1, while a wait queue is discussed in regards to adding and removing entries, it does not teach or suggest ordering the entries "based on the priorities of the requests in the request queue". Regarding the two sections cited in relation to "priorities", it is respectfully submitted that the "priorities" of section 2.4 pertain to the priorities for sequencing the AIO operations and respecting the priority of an operation all the way through from initiation to completion processing. However, neither an event delivery priority (as noted in section 5, page 10) nor the priority for an overarching AIO request are the same as the priority for "a request to **retrieve** a specified number of events from an event port". The basis of the former priorities comes from the initial request for AIO, while the basis for the latter, as claimed, may be derived or from other sources, such as the load conditions that are currently detected for the system (for example, as listed on page 5 of the specification as originally files). The resulting difference between these two concepts is particularly exemplified in section 2.6.1 of Bhattacharya, wherein available events are given to the first thread to pickup the events after a waking up multiple thread (pages 11-12). Waking up multiple events for received data and providing data on "first to pick up" does not suggest any form of priority for a waiting thread, much less an arrangement of the threads that is based on such a priority for each thread.

Regardless, none of these sections discuss 'ordering' the items in a queue based on priorities, as is claimed in amended Claim 1. In contrast, the cited sections suggest 'separate queues for different priorities" and building "an aggregate queue (virtual) queue" (section 5, page 10). Separate queues are not equivalent or suggestive of "a request queue" that has been ordered based on priorities of the requests queued therein. A virtual queue is also not the same as the claimed

"request queue". No indication for this virtual queue is given in Bhattacharya in regards any form of priority-based ordering for the entries, including the claimed "ordering... based on priorities of the requests in the request queue". It is further noted that section 2.6.1 on page 11 includes the use of a LIFO arrangement for waking up threads. The sequence of entry into a queue is not the same as the claimed priority of a retrieval request. Rather, it suggests that the order of waking is based on sequence of received, which is not the same as being based on an internal property or associated priority as represented in the claimed invention. This difference between an LIFO wake up scheme and one that involves ordering request based on priority further substantiates the distinction between the teachings of Bhattacharya and the claimed invention.

As such, for at least the above reasons, it is respectfully submitted that Bhattacharya does not teach all of the limitations of Claim 1 as currently claimed.

Regarding (B), it is respectfully submitted that Bhattacharya does not further teach or suggest changing priorities of requests based on the available events and a specified number events included as part of a retrieval request. In contrast, the teachings of Bhattacharya discloses handling priorities "fairly" and preventing other processes from starving or impeding a request, while respecting this priority all the way through its execution (and again, it is noted that these 'priorities' are based on IO scheduling, not retrieval of events as defined in the limitations of Claim 1) (see page 7, 2nd and 5th points at the top). These teachings run contrary to changing priorities, as claimed in Claim 1.

Bhattacharya also fails to teach or suggest receiving requests in responsive to an available number of events, including ones that change priorities of requests, as is presently claimed. The available events affect waiting events (page 12, section 2.6.1), but are not the basis of newly received events.

It is further noted that the Office Action has relied on a rationale that different elements in the teachings of Bhattacharya can be implemented to arrive at the priority-based limitations in the claimed invention (see treatment of Claim 4, page 7 of Office Action). First, it is noted that the mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination, per MPEP 2143.01. So far as the reference of Bhattacharya does not provide this suggestion or desirability, nor has any

such desirability or suggestion been cited in the Office Action, it is respectfully submitted that a prima facie case of obviousness has not been established for at least Claim 4. Further, as it relates to Claim 1, these teachings of Bhattacharya cannot be implemented to arrive at the priority-related arrangement of amended Claim 1, since they do not include or suggest a basis for changing priorities that at least comprises the specified number of events in a request received from the computer software application and a number of available events. Again, as noted above, the priorities discussed in Bhattacharya do not include particular priorities for retrieval operations, which are an underlying feature of the claimed invention.

For at least the above reasons, it is respectfully submitted that Bhattacharya does not teach all of the limitations of Claim 1, including the amended limitation, as currently claimed.

It is respectfully submitted that none of the other references cure these deficiencies. Benhase deals with priorities for IO operations, again, which does not particularly teach or suggest 'retrieval priorities' as are the subject of the claimed invention (col. 1, lines 15-19). Regardless, the requests in Benhase does not involve multiple event for a single return and the IO requests. The only disclosed form of priority adjustment is based on the priority of a second entry (col. 3, lines 6-9). This is distinct from changing priorities based on a specified number of events to retrieve as part of a retrieval request, wherein this request is received in response to the number of available events. For at least these reasons, Benhase do not anticipate nor render obvious the limitations of Claim 1, as amended.

Lucovsky, similar to Bhattachayra, also utilizes also utilizes LIFO queue for ordering waiting requests (col. 10, lines 50-54). For at least the reasons similar to those listed above, Lucovsky cannot be considered to teach the claimed "priorities" or the "ordering" of the request queue based on priorities as is presently claimed. It is further noted that Lucovsky also does not involve returning multiple events with a single thread. As such, it is respectfully submitted that Lucovsky does not teach or suggest changing priorities at least based on the specified number of events included in a retrieval request as has been included in the amended limitations of Claim 1.

For at least the above reasons, it is respectfully submitted that none of the prior art relied upon in the rejections in the previous Office Action, whether alone or collectively considered, teaches or suggests all of these limitations of amended Claim 1, particularly when these limitations

are considered as a whole. As such, withdrawal of the rejection of Claim 1 is respectfully requested.

So far as **Claims 2, 6-8, 10-12, 18-22, 26-28, 30-32, 38-41 and 44** depend from Claim 1 or have been amended to include similar limitations, it is respectfully submitted that these claims are allowable for at least the same reasons listed above. In light of the above remarks, withdrawal of the rejections of each of these claims is respectfully requested.

III. Claim Rejections - 35 U.S.C § 103

Claims 4, 5, 9, 24, 25, 29, 33, 35, 37 and 43 were rejected under 35 U.S.C. 103(a) as being unpatentable over Bhattacharya.

So far as **Claims 4, 5, 9, 24, 25, 29, 33, 35, 37 and 43** depend from amended Claims 1, 21, and 41, it is respectfully submitted that these claims are allowable for at least the same reasons listed above. It is also noted that Claim 29 has been amended herein in order to clarify the proper dependency for the claim. In light of the above remarks, withdrawal of the rejections of each of these claims is respectfully requested.

Claims 3, 23 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bhattacharya in view of Benhase et al, U.S. Patent No. 6,745,262 (hereafter Benhase).

So far as **Claims 3, 23 and 42** depend from amended Claims 1, 21, and 41, it is respectfully submitted that these claims are allowable for at least the same reasons listed above. In light of the above remarks, withdrawal of the rejections of each of these claims is respectfully requested.

Claims 14 and 16 were rejected under 35 U.S.C. 103(a) as being unpatentable over Bhattacharya in view of Lucovsky et al, U.S. Patent No. 6,223,207 (hereafter Lucovsky).

So far as **Claims 14 and 16** depend from amended Claim 1, it is respectfully submitted that these claims are allowable for at least the same reasons listed above. In light of the above remarks, withdrawal of the rejections of each of these claims is respectfully requested.

CONCLUSION

In view of the above amendment, applicant believes the pending application is in condition for allowance.

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Respectfully submitted,

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